



PRACTITIONER'S DOCKET NO.:FRANK'S CASING-102

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:	§	
	§	
MOSING ET AL.	§	GROUP ART UNIT: 3673
	§	
SERIAL NO.:	10/690,920	§ EXAMINER:
		§
FILED:	OCTOBER 22, 2003	§ VISHAL A. PATEL
		§
TITLE: TUBULAR CONNECTION WITH SLOTTED	§	
THREADS	§	

**COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450
ATTN: Group 3673**

REPLY BRIEF TO AN EXAMINER'S ANSWER UNDER 37 C.F.R. 41.41

Sir:

Appellants hereby submit this Reply Brief, under 37 C.F.R. 41.41, to the Examiner's Answer mailed March 6, 2007. This being in furtherance of the Notice of Appeal under 37 C.F.R. 1.191, filed June 19, 2006, and the Corrected Appeal Brief under 37 C.F.R. 41.37 filed December 21, 2006, to the Board of Patent Appeals and Interferences, to appeal the decision of the Examiner of the Final Rejection of Claims 1-7, 10, 12-15, 17-21, 23, 26, 28, 29, 32-39, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73 for the above designated application. Appellants hereby submit the information and arguments are in conformance to 37 C.F.R. 41.41.

(1) Response to Examiner's Response to Argument

This Reply Brief incorporates, by reference, each and every paragraph of the Corrected Appeal Brief, filed December 21, 2006, as if specifically set out herein.

The Examiner alleges that Appellants' argument is based upon features which are not cited in the rejected claims (i. e. pile driving pipe or tubulars into the earth and a coupled pipe being driven into the earth such as by hammering). The Appellants respectfully submit that

Claims 4, 34, and 39 recite a connection used for connecting pipes which are being driven into the ground. The claims, from which Claims 4, 34, 39 depend, recite that the shoulders contact to resist compressive or radial forces. Such forces are those exerted by pile driving and/or hammering of the pipe. Further, the Oxford Dictionary (Oxford University Press, Inc, 1998) defines drive as “urge in some direction, especially forcibly” and defines pile driver as “a machine for driving piles into the ground.” Still further, the Appellants respectfully submit that those skilled in the art know that in the oil field, driving pipe means to forcibly, such as by pile driving or hammering, drive casing or tubulars into the ground. Therefore, Appellants’ respectfully submit that the feature of pile driving or hammering is inherently claimed in Claims 4, 34, and 39 which use the language “being driven into the earth.” However, the Appellants stand ready to amend the claim language, should the Board authorize such amendments to add the elements of Claims 4, 34, and 39 to the respective claims from which they depend and specifically claim “...said connection is used for connecting pipe, which is being driven into the earth by pile driving and/or hammering.”

Claims 1, 4-5, 7, 10, 12, 14, 18, and 20 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 1,507,877 to Wilson in view of U.S. Patent No. 5,709,416 to Wood.

Appellants appreciate the Examiner addressing the limitation concerning Appellant’s feature of interference dimensions. However, Appellants respectfully disagree with the Examiner’s characterization of the Wilson threads. Wilson twice states that threads 21 ride into threads 22 and the second time teaches that the ride is made “smoothly and easily. *See Page 2, lines 6-8 and lines 28-29.* Appellants respectfully submit that nowhere does Wilson teach nor suggest any interference fits between threads. It is well known, in the art, that thread interference depends specifically upon the pitch and size difference between mating threads. Thus, when thread fit is not critical, the mating threads are normally machined so as to avoid interferences and to allow easy mating (as described by Wilson).

In sharp contrast, when an interference fit is required, the threads are specifically machined to provide any desired interference. Thus, it is respectfully submitted that an interference fit is an intentional manufacturing step and should be explicitly stated when such an interference is desired. If there is no mention of an interference fit, those in the art would not

expect to encounter such a fit.

The Examiner alleges that Wood's mortise and tenon design discloses the Appellants' unique shoulder and mating nose. However, Wood teaches that the threads, of the pin and box, are undercut so as to be load bearing surfaces. *See* Col. 3, line 63 - Col. 4, line 16. Further, Wilson also teaches that the threads actually bear the load. *See* Wilson, Page 1, lines 103-106 (The arrangement of a double thread produces the bearing surface of a fine thread). In sharp contrast, and as per Claim 1, the Appellants' nose and shoulder are designed to be the load bearing surfaces.

Claims 23, 26, 29, and 34-35 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 1,507,877 to Wilson in view of U.S. Patent No. 5,709,416 to Wood.

The Examiner relies on Wilson's drawings to show that thread 22 is not continuous. However, Wilson, at Page 2, lines 14-29, clearly and explicitly states that thread 20 is continuous and is shown as such in Figure 4. Appellants respectively submit that both Wilson and Wood teach that the threads are the load bearing surfaces of the joints. In sharp contrast, the Appellants' shoulders are the load bearing surfaces and are separate and distinct from the surface of the protuberances. Further, neither Wilson nor Wood, alone nor in combination, teach, as recited in Appellants' Claim 23 that the first abutting surface and the second abutting surface are shaped so as to entrap an abutting surface to restrain radial movement. The abutting surfaces of neither Wood nor Wilson entrap any abutting surface so as to prevent radial movement.

Claims 37 and 39 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 1,507,877 to Wilson in view of U.S. Patent No. 5,709,416 to Wood.

The Appellants respectfully bring to the Examiner's attention, that as argued previously (hereinabove and in the appeal brief), Both Wilson and Wood teach that the threads are load bearing. In sharp contrast, Appellants specifically claim that the compressive loads of the joint are borne by the shoulders and that at least one mating internal and external shoulder is shaped so as to restrain radial movement. Neither of these features is taught by Wilson nor Wood.

Claims 51, 54, 60, 61, and 63 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 1,507,877 to Wilson in view of U.S. Patent No. 5,709,416 to Wood.

Neither Wilson nor Wood teach, disclose, nor even suggest restraining radial movement because that is not a concern with the pipe employed by both Wilson and Wood. Wilson was filed in 1921 at a time when wells were not very deep (Wilson at lines 19-23 refers to a well or tubing string measuring two to three thousand feet) and the drill string and tubing were not very large in diameter. Wood specifically references drill sting pipe (Wood - Col. 1, lines 10-12). Typically, these pipes have substantial wall thickness and are never hammered into the ground. Thus, there would be no need for either Wilson or Wood to be concerned about radial movement due to hammering. In sharp contrast, The Appellants' connection is used for very large diameter pipe thus the wall thickness is not proportionately as thick as it is in smaller pipes. Further, the wall is thinner at the thread area and thus the concern to restrain radial movement is very important for the integrity of the completed joint.

Claims 69, 72, and 73 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 1,507,877 to Wilson in view of U.S. Patent No. 5,709,416 to Wood.

Appellants respectively submit that, as discussed hereinabove and in the appeal brief, neither Wilson nor Wood, alone nor in combination, teach nor disclose the interference fit between mating incomplete threads

Further, neither Wilson nor Wood teach nor disclose the Appellants' claimed series of threaded sections, unthreaded sections, and abutments. Per Claim 69, the box and pin are both claimed as having an unthreaded length between each abutting surface and threaded section. Appellants respectively brings to the Board's attention that the Wood box end has no unthreaded section between the top tenon (6) and the top of the threads (i.e. the thread length ends (or begins) at the same point, lengthwise, as the top tenon). Similarly, Wilson does not teach nor suggest an unthreaded length between surface 23 and threads 20 (pin) nor surface 24 and threads 22 (box).

Claims 1-5, 7, 10, 12-15, and 17-21 are patentable under 35 U.S.C. 103(a) over U.S.

Patent No. 6,283,511 to Kamp in view of U.S. Patent No. 5,709,416 to Wood.

Appellants respectfully submit that Kamp is a wholly different coupling design, Kamp does not disclose the Appellants' claimed device, and Kamp would never be combined with Wood as Wood and Kamp are not compatible types of coupling designs.

Kamp clearly teaches a single shoulder surface 7, 57. Kamp's element 20 is an engaging tooth (see col. 6, lines 15-16) and the abutment surface 35 is formed on an axial projection of the tooth 20 (see Col. 11, lines 28-29) Kamp's element 86 is formed on a radial projection of abutment surface 85 (see Col. 11, lines 37-38). Thus, Kamp teaches a rotational stop, together identified as tooth 20, its abutment surface 35 and element 86 and its abutment surface 85. Wood, at column 3, lines 62-63, describes that the necessary coupling occurs during the last infinitesimal turn of the pin on the box. Kamp's rotational stop is to prevent overturning. Thus, Appellants respectfully submit that the tenon/mortice design of Wood, which relies on turning until coupled, and the positive rotational stop of Kamp are not adaptable to each other as it is possible that the positive rotational stop of Kamp would prevent the complete coupling required by the teachings of Wood; thus, destroying the purpose of Wood. Further, the rotational stop of Kamp is necessary to prevent the interrupted threads from being turned past the point of engagement. There is thus no reason that one skilled in the art would be motivated to combine Kamp and Wood as the mortise and tenon of Wood adds nothing to Kamp.

Further, Appellants respectfully submit that Kamp does not teach, disclose, nor suggest the utilization of double shoulders mating so as to bear compressive loads to which the male and female ends are exposed during at least one application of the invention such as the hammering of the tubulars into the earth. Because Wood also does not teach nor suggest the utilization of the shoulders mating so as to bear compressive loads to which the male and female ends are exposed during the hammering of the tubulars into the earth, Wood does not add anything to Kamp.

Further, Kamp's rotational stop relies on surfaces of the end teeth and therefore does not teach, disclose, nor even suggest that the shoulders are distinct from the surfaces of the protuberances or teeth. And as discussed herein, the addition of Wood's mortise and tenon would not be added, by one skilled in the art, to Kamp.

The Appellants' respectfully disagree with the Examiner's allegation that Kamp teaches that protuberances 70-77 embody any interference dimension. The Appellants respectfully submit

that Kamp's Figure 5 simply shows that the protuberances mate upon turning and absolutely show no interference.

Further, neither Kamp nor Wood, alone nor in combination, teach, disclose, nor even suggest that a mating nose face be entrapped so as to substantially restrain radial movement.

Claims 23, 26, 28, 29, and 32-36 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,283,511 to Kamp in view of U.S. Patent No. 5,709,416 to Wood.

The Appellants respectfully disagree with the Examiner's allegation that Kamp teaches abutting surfaces that are distinct from the surfaces of the protuberances. Throughout Kamp, element 20 is identified as a tooth projecting from the surface (protuberance). Thus, the abutting surfaces 20/86 are not distinct from the surfaces of the protuberances. Further, the abutting surfaces are not shaped so as to entrap a mating shoulder to restrain radial movement.

Claims 37-39 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,283,511 to Kamp in view of U.S. Patent No. 5,709,416 to Wood.

Appellants respectfully submit that neither Kamp nor Wood teach, disclose, nor even suggest that the corresponding faces of a mating nose and shoulder are distinct from the surfaces of the threads, that at least one shoulder entraps a mating nose face so as to restrain radial movement, and that the nose faces cause the compressive loads to be borne substantially by the corresponding mating shoulder. Appellants respectfully submit that adapting the Wood mortise and tenon to the Kamp connection would defeat the purpose of Wood as the Kamp rotational stop may prevent complete coupling and will lead to connection failure during pile driving.

Claims 51, 54, 56-58, 60, 61, and 63-66 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,283,511 to Kamp in view of U.S. Patent No. 5,709,416 to Wood.

As discussed hereinabove, Appellants respectfully submit that neither Kamp nor Wood teach, disclose, nor even suggest that the corresponding faces of a mating nose and shoulder are distinct from the surfaces of the threads nor that at least one shoulder entraps a mating nose face

so as to retrain radial movement.

Claims 69, 72, and 73 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 6,283,511 to Kamp in view of U.S. Patent No. 5,709,416 to Wood.

The Appellants respectfully disagree with the Examiner's allegation that Kamp teaches abutting surfaces that are distinct from the surfaces of the protuberances. Throughout Kamp, element 20 is identified as a tooth projecting from the surface (protuberance). Thus, the abutting surfaces 20/86 are not distinct from the surfaces of the protuberances. Further, the abutting surfaces are not shaped so as to entrap a mating shoulder to restrain radial movement.

Claims 1, 4-6, and 12-14 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 4,185,856 to McCaskill in view of U.S. Patent No. 5,709,416 to Wood.

McCaskill is a sub-sea connector which does not suggest a need for having shoulders to bear the compressive loads that otherwise must be borne by the threads or protuberances. Appellants respectfully submit that McCaskill does not teach, disclose, nor suggest the utilization of double shoulders and corresponding nose ends mating so as to bear compressive loads. Further, McCaskill uses stop lugs 90 and 78 to limit the rotation for making the joint. After stop lugs 90 and 78 contact to limit the rotation, a latch 92 is used so as to effectively sandwich stop lug 78 between stop lug 90 and latch 92. This prevents any rotation of the coupled parts in any direction.

One skilled in the art would have no reason or motivation to combine the teachings of Wood with McCaskill because Wood does not add anything to the McCaskill connection. Further, Appellants submit that the stop lugs of McCaskill would destroy the purpose of Wood's mortise and tenon because Wood requires for the threads to be rotated until tight with load bearing surfaces in contact with each other.

McCaskill teaches a **single** shoulder at surfaces 62, 72 with stop lugs and latches and thus requires no other shoulders nor would McCaskill want or need the Wood mortise and tenon. Because McCaskill would not be used for connecting pipe being hammered into the earth and such is at least one application of the Appellants' connection, McCaskill does not require load

bearing surfaces for heavy axial loads. In summary, the teachings provided by Wood, are not necessary for McCaskill since McCaskill relies on latches to prevent rotation and maintain a connection.

Claims 37-39 are patentable under 35 U.S.C. 103(a) over U.S. Patent No. 4,185,856 to McCaskill in view of U.S. Patent No. 5,709,416 to Wood.

Appellants respectfully submit that neither McCaskill nor Wood teach, disclose, nor even suggest that the mating of the respective pipe ends are shaped to substantially entrap the end to prevent radial movement. The Examiner quotes Wood as eliminating any movements to separate the joint. However, the Wood design is not subject to radial movement as it is not pile driven or hammered. Thus, neither McCaskill nor Wood are concerned with the prevention of radial movement. Further, Applicants respectfully submit that any compressive loads applied to McCaskill are borne by the latch mechanism assemblies and not the shoulders. Thus, since McCaskill must rely on the latch assemblies to remain together, the addition of Wood's mortise and tenon would still cause any compressive forces to be borne by the latching assemblies.

Conclusion

None of the cited art, taken alone or in combination, discloses, teaches, or even suggests a connection or a method of making a connection that is quick to make-up or break-out and that can resist the forces of pile driving without compromising the integrity of the connection. Neither Kamp nor McCaskill teach nor disclose a connection having double shoulders with mating nose ends and neither Kamp nor McCaskill can be combined with Wood without destroying the purpose of that invention. Neither Wilson, Kamp, McCaskill, nor Wood teach, disclose, nor even suggest that connected tubulars can be hammered into the earth and that the double shoulders can bear the compressive loads, such as may be generated by the hammering and thus substantially prevent the compressive shock loads from being transmitted to the threads.

It is therefore respectfully submitted that Claims 1-7, 10, 12-15, 17-21, 23, 26, 28, 29, 32-39, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73 are patentably distinct over the art of record. Appellants courteously solicit the allowance of Claims 1-7, 10, 12-15, 17-21, 23, 26, 28, 29, 32-

39, 51, 54, 56-58, 60, 61, 63-66, 69, 72, and 73. Although Appellants believe that no additional fees are required, beyond the fees being submitted concurrently with the filing of the separate paper - Request for Oral Hearing under 37 C.F.R. 41.47, the Commissioner is hereby respectfully authorized to deduct such additional fees or refund any overpayment, as might be required, from or to Deposit Account Number 13-2166.

Respectfully submitted,

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Taras P. Bemko
(Registration No. 52,609)
The Matthews Firm
(Customer # 021897)
2000 Bering, Ste. 700
Houston, Texas 77057
(713) 355-4200 - Telephone
(713) 355-9689 - Facsimile